

Jessica Junker¹, Christophe Boesch^{1,2}, Theo Freeman³, Roger Mundry¹ and Hjalmar S. Kühl^{1,4}

¹Department of Primatology, Max Planck Institute for Evolutionary Anthropology, Leipzig, GER

²Wild Chimpanzee Foundation, Deutscher Platz 6, Leipzig, Germany

³Forestry Development Authority, Wheintown, Mount Barclay, Liberia

⁴German Centre for Integrative Biodiversity Research, Deutscher Platz 5e, 04103 Leipzig, Germany

Correspondence: jessica_junker@eva.mpg.de

Integrating wildlife conservation with conflicting economic land-use goals in a West African biodiversity hotspot

Half of what remains of the “Guinean Forests of West Africa hotspot” is located in Liberia. However, only about 2% of the country is officially protected. We systematically identified and evaluated priority areas for the protection of large mammals and biodiversity in Liberia under different conservation scenarios. We also assessed current proposed protected areas (PPAs) for their ability to achieve pre-determined conservation targets, and determined potential wildlife and biodiversity loss within logging and mining concessions (concessions). We systematically collected nationwide data on chimpanzee (*Pan troglodytes verus*) abundance, large mammal and tree taxonomic diversity, and human threats. We related these to environmental and human impact variables to develop nationwide spatial prediction models that also served as base-layers for spatial prioritization using MARXAN. The conservation area network selected under optimal land-use conditions contained 92 areas that maximized biodiversity and chimpanzee abundance, minimized threats, and accomplished the government’s goal of protecting 30% of its forests. It included >50% of the country’s chimpanzees, whose habitat significantly overlapped with that of some of the most species-diverse large mammal and tree communities. Concessions considerably increased fragmentation of conservation sites. PPAs partially overlapped with conservation priorities, but proved insufficient in meeting conservation targets. They also largely overlapped with existing PPAs and conservation priority sites to the extent that current development plans may considerably undermine future conservation efforts and jeopardize the long-term existence of Liberia’s chimpanzees and endemic biodiversity.